

**Want this Job? An Exploratory Analysis of Differing Views towards
Pursuing a Truck Driving Career**

Undergraduate Honors Research Thesis

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Abstract

Over the past 15 years the United States (US) has faced a massive shortage of truck drivers. The shortage has come to head in recent years, but a lack of truck drivers to support the economy has been a subject of research since the 1980s. Truck drivers have long been stereotyped as a rough and tumble group. This creates a scenario where workers in the trucking industry might be viewed as closed minded and unwilling to accept change. There are many factors that influence views towards employment in a particular occupation, but this research focuses on the effects of the public stereotypes about truck driving and how it shapes people's views towards the opportunities for a variety of potential applicant pools for truck driver recruitment. In addition, this research seeks to quantify people's opinions about the industry and what potential shortcomings the public image of trucking may have for the industry's goals to balance labor supply and demand. Through a vignette-based experiment, this research pursued these goals with a particular focus on how views change based on gender and ethnicity, and this was evaluated in the context of key factors including subject gender identity, width of knowledge base, and personal connections to the truck driving industry. Building upon the results, research-based suggestions were formulated to help enhance perceptions of the truck driving profession moving into the future.

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Introduction

People often try to avoid discussions of the stereotypes they believe to be true, but they are real and matter in how we think about and function in society. During the process of looking for internships for the summer after my junior year, I considered multiple positions at trucking terminals with LTL companies, and to my surprise, I had several people discourage me from applying to those types of positions. The general consensus among my friends and family was that they thought these were not suitable places for me, as a member of the LGBTQ community, to work. They painted a picture of an industry set in its ways and hostile to those that go against its traditional order. This experience served as my motivation to pursue this research project. Their viewpoints made me wonder whether or not I was the only person who been in that situation. As a social psychology minor, I have always been fascinated by group dynamics and how people think, and I had already developed an understanding of the nation's truck driver shortage from my work the prior summer. I decided to combine these two interests to examine how social dynamics could play a part in the current truck driver shortage.

After speaking with my thesis advisor, I decided the best way to gain a basic understanding of potential affects is to see how people view an opportunity in trucking based on the demographics of the applicant. The idea being that this type of analysis might be able to provide insights into stereotypes that exist towards and within the industry.

Trucking is the leading mode of transportation for goods in the United States in terms of total dollars spent. It provides a flexibility in delivery that other modes cannot provide, and a speed across short to medium distance which is unmatched. With trucking being such an integral part of the economy, the shortage of drivers can have notable negative effects on the United States economy because of the number of firms that rely on the industry in some fashion to

execute their business. This research seeks to describe the current situation that the industry faces and delineate the various forces at play.

Research Setting: The Trucking Industry

In my introductory logistics textbook, there's a photo of a trucking advertisement which has a picture of a baby and the text, "The only thing that isn't delivered by truck." While this is of course an exaggeration, the trucking industry is crucial to product delivery across most industries. Very few people live right at a sea port, airport, or railyard where they can pick up the goods for themselves, so the motor carrier industry is crucial to ensuring consumers get the goods they desire where they want to receive them. Trucking provides the flexibility needed to make door-to-door shipments possible. Everything from the mail a person gets in the morning to the groceries they pick up at the store in the evening likely traveled in a truck at some point during its journey.

According to the Council of Supply Chain Management Professionals (CSCMP), US transportation spend reached \$1.04 trillion which was a large part of the \$1.64 trillion spent overall on logistics services last year. Trucking accounted for about two-thirds of the transportation spend at \$668.4 billion. The full truckload segment of this market was \$550 billion. (BLS) Transportation costs rose 10.4% last year which has a significant impact on business operations considering transportation spend makes up 5.1% of US GDP. Increasing transportation prices ultimately get passed on to customers which reduces discretionary income for everyone. There are many factors fueling the rising prices within the truck driving profession, but one of the biggest factors is the tight labor market many firms have continued to face.

Background on the Driver Shortage Challenge

Labor supply is a main driver of the truck driver shortage. The American Trucking Association (ATA) has stated that the industry is currently facing a shortage of approximately 51,000 drivers as they seek to meet the growing demands of ecommerce in today's economy. They ATA has also stated that this gap could grow to 100,000 within the next two years. A big factor in that growing shortage is the narrow demographics among the current truck driving population.

The current demographics of the industry paint a picture of a typical truck driver. The average trucker is an older white male. 66.6% of all truck drivers are white males, 27.4% males of other races, and only 6% of truck drivers are female. This narrow demographic pool becomes an issue in part because of the age of the average truck driver. According to the ATA, the average age of a private fleet driver is 52. The average age of a Less than Truckload (LTL) driver is 50, and the average age of a Truckload (TL) or drayage operator is 47. This means that the gap between labor demand and supply will only increase as drivers begin to reach retirement. The truck driver shortage has been discussed for over 20 years, but as evidenced by the ATA statistics, there's been little progress over the years. (Southern, et. al 1989) The labor shortage continues to grow as overall demographics shift across the nation. In particular women tend to have higher life expectancies and the US is becoming increasingly diverse. Being able to access a workforce that mirrors the country as a whole will be crucial to ensuring a steady pool of labor for any industry. The other main factor in the truck driver shortage is high turnover rates. Turnover rates in the truck driving industry are often 12 to 25 times higher than in the general economy, and a number of firms have annual turnover ratios over 100% (Min and Enam 2002). Replacing an entire workforce can dramatically increase transportation costs, which in turn are

passed on to customers. The combination of these two factors can significantly contribute to situations like that experienced in 2018 when transportation costs rose 10.4%. (CSCMP)

A Traditional Supply and Demand View of the Problem

It seems clear that the truck driver shortage has been a consistent, long term problem in the United States, but this begs the question of why the market hasn't solved the problem yet. Conventional economic thinking would tell us that a shortage in labor would lead to rising wages until the supply met demand. While the truck driving labor market is not perfectly competitive due to entry costs, the effect cannot be explained purely by this one characteristic. Because there are entry costs into the profession, mostly in the form of a Commercial Driver's License (CDL), there is a degree of barriers to entry in terms of cost and time for the profession. Obtaining a CDL takes formal training and also serves as a potential financial barrier for perspective drivers. In response to this challenge, transportation firms have various programs in place to reduce these costs and make it easier for potential drivers to enter the profession. A common one is a driver development program, where the firm provides a perspective driver with the technical and/or financial resources to complete their CDL training and get the proper ride along and instructor hours; in return, the driver commits to working for the sponsoring company upon receiving their CDL.

From a wage perspective, the truck driving profession pays better than many blue-collar jobs that do not require advance education. According to the Bureau of Labor Statistics (BLS), the average starting wage for a truck driver is \$20.50/hr which is 182% above minimum wage. The BLS also reports that, 69.1% of all truck drivers have no more than a high school education, so entrance into this profession is obtainable by most people on the socioeconomic ladder. Truck driving also provides a level of economic stability that other professions with similar education

requirements cannot match. The labor shortage makes each driver more valuable and less likely to be fired or laid off. This would seem to create a set of incentives where a shortage shouldn't exist, but in reality, the market hasn't solved the issue of balancing supply and demand. While it is still possible that the labor market adjusts to solve the problem, it's worth broadening the discussion to sociocultural factors and how they may be affecting the truck driver shortage.

Demographics of the Truck Driving Profession

The narrow demographics of truck drivers could play a role in this shortage in multiple ways. The first is that it can serve as an impediment to the firms' replenishment of drivers. As referenced earlier, driver turnover is a severe issue trucking firms face. It is a consistent issue that forces trucking companies to identify a continuous supply of new truck drivers to fill their open positions. This turnover problem is staying steady, but the demographic trends are changing where the population of "stereotypical" truck drivers that can fill open positions is decreasing. (Pew Research Center) As mentioned previously, truck drivers are historically relatively homogenous. 94% are men and 66.6% are white men. No industry the size of trucking can survive on such a narrow demographic base for the labor pool. For reference, \$700b was the size of the government Troubled Asset Relief Program bailout during the recent recession. The combined revenue of American Airlines, Delta Airlines, United Airlines and Southwest airlines is roughly \$147 billion dollars. (SEC 2020) No one would expect those firms to function properly employing only one gender or one specific demographic, and it stands to reason the trucking industry can't function by only accessing labor from such narrow demographics.

Sociocultural Issues Surrounding Truck Driving.

Social influence and group dynamics play a role with any group as homogenous as the truck driving community and any outside demographic group trying to become truck drivers. The

'Me-Too' era has brought a new level of awareness regarding sexual harassment and assault in the workplace. As a society, many of the issues that women face in the workplace have come to light, and this could increase the societal influence of expected gender-based harassment in the hiring process. An example of this would be that friends and family of a potential female truck driver may put extra emphasis on discouraging her from applying to be a truck driver because perceptions of the potential for sexual harassment they may face.

The social importance of diversity and inclusion is growing as well. America is a much more accepting place than it has been historically. To use the LGBTQ community as an example, acceptance of same-sex marriage has reached record highs within the past few years, but that support is heavily stratified. Millennials are 5x more likely to be accepting of same-sex marriage than those born in the Silent Generation, before the outbreak of World War Two. (Pew Research Center 2019) As mentioned earlier, the truck driving labor force is made up of an older demographic which is mostly male. Research has shown that this group tends to score the lowest when it comes to accepting diversity. However, the demographics of the profession will need to evolve as the views of society changes. This has the potential to create workplace tension because, in the past, members of the profession could form bonds based upon their similar backgrounds, but a changing world will bring new groups and new challenges into the social dynamics of this profession. This could lead to harassment, conflict, or turnover from those entering the industry feeling like they don't belong if the current members of the truck driving profession resist changes to what they view as their historical identity.

One just has to look to the United States history around immigration to see how the entrance of new groups can cause conflict from an established majority group. Irish immigrants faced prejudice as they moved into the East Coast in the 1830s. Prejudice towards new Chinese

populations on the West Coast culminated with the Chinese Exclusion Act of 1882. Women couldn't vote until 1920. While what happens in the truck driving profession may not reach these historic levels, it shows that there are plenty of historical examples to drive an expectation that minorities entering the truck driver profession may face resistance. The future of a productive, cost-effective transportation industry rests on the ability of the industry to grow with the times and evolve into a profession for all.

Literature Review

The two central fields this research covers are logistics/transportation and social psychology. The logistics and transportation literature provide the context and process basis for the behavioral dynamics that can be explained by the social psychology literature. The logistics literature focuses on different recruitment and retention strategies while the social psychology literature focuses on social forces and dynamics. This research adds to the current body of knowledge because it explores a key issue at the intersection of the two fields which gives a concrete employment scenario to the social psychology literature and examines the social factors in the industry which have not been thoroughly examined so far. The key question this research seeks to address is how the demographics of a potential truck driver shapes people's views of how they, or those they influence, fit into the industry. This utilizes aspects of the current on the truck driving literature and social psychology literature on social identity theory, group dynamics, and stereotypes.

Logistics/Transportation Literature

Driver Turnover

The driver turnover problem firms face has been a focus of the logistics/transportation literature particularly in the last twenty years. Quantifying the scope of the problem has been the

major goal. The research timeline also reveals that driver shortage and turnover has been a consistent issue within the profession for an extended period of time, but no one to date has identified a workable solution. In a 1989 article, Neil Southern and his team recorded that 53% of firms they surveyed had recorded “often” or “frequent” driver turnover problems and only 11% reported never having turnover issues. (Southern et.al 1989) More recent articles have the effective turnover rate for TL drivers as being 127%. (Williams, 2011) This high rate of driver turnover is expensive for firms to handle. A common estimated figure for replacing a driver is \$25,000 in direct cost, but that number doesn’t include potential safety and efficiency costs. (Williams, 2011) For reference, if a firm has 40 drivers, \$1 million or more could be spent every year on replacing those who leave the firm.

This stream of research has also pinpointed what firms stress when recruiting new drivers. Pay is one of the most frequent selling points that firms emphasize to potential applicants with one study reporting that 79% of companies frequently stress pay and 78% of companies frequently stress the condition of their equipment. (Southern, et.al 1989) These are just some of many factors that can affect employment length and how an employee views their job under social exchange theory of employment, which describes an employment relationship as a series of social exchanges between employee and company. (Williams, 2011) This is a theory that asserts that factors could include time off, flexible work schedules, career advancement and other more personal factors. This creates an environment where an employee knows they’re cared about beyond purely a cost-revenue perspective. (Williams, 2011)

While turnover rates vary dramatically between firms, it’s estimated that approximately 50% of drivers leave within their first three months of employment. (Min, et.al 2002) A common hypothesis as to the cause of this early turnover relates to the work environment of the firm.

Drivers that feel less connection to their firm either because of a mismatch in personality or activity levels are more likely to leave. This helps explain why unionized and/or full-time drivers have lower turnover rates than nonunionized and/or part time drivers. (Min, et. al 2002)

Another common theme in the literature is that turnover rates are negatively correlated with opportunity cost. Drivers that reach over six years at a firm, older drivers, and less educated drivers all have lower turnover rates because they have a higher opportunity cost to leave. Time at firm can allow a driver to work up to more lucrative routes, and older and less educated drivers often are in scenarios where an established job like trucking is their best economic option with the limited working time and experiences they may have. (Min 2002) The current study adds to this literature on driver turnover because it examines issues surrounding connection to work which could impact employee loyalty and turnover.

Driver Recruitment

The literature on driver recruitment falls into two major categories: methods to recruit drivers and new populations to recruit. There are many methods of driver recruitment. Trucking firms could recruit openly from the market, but the issue with this approach is that it often doesn't solve the truck driver shortage. Most often these drivers are hired away from other firms, thus creating a turnover problem for the other firm and ultimately a circular pattern of stealing drivers from each other. (Southern et. al 1989) Another popular form of driver recruitment is through formal programs where promising freight handlers (a typical entry-level job) are developed and trained to pass the CDL. Established firms like FedEx Freight, Old Dominion and UPS Freight use this approach, and it has been shown to be effective because workers see that the firm is making a considerable effort to develop them, which builds employee loyalty. Another advantage of hiring from within is that the firm can instill firm specific procedures on

topics like safety to ensure that the perspective driver has the best technique possible. Externally recruited drivers may have picked up habits from their years at other firms which may not be ideal for their new employer.

Trade and vocational schools are both effective means of recruitment because employers hire with the advanced knowledge that a perspective employee was taught a particular set of skills in a particular fashion. (Lemay and Taylor, 1988) Searching for potential drivers via recruiters and advertisements are also written about extensively in the literature. The downside identified from the use of recruiters is that they often raise expectations well beyond what is reasonable, and this actually fuels turnover because drivers leave discouraged and talk others out of joining the industry. (Lemay and Taylor 1988)

Another recruiting method widely discussed in the literature is to rely upon word-of-mouth. While this has obvious advantages because drivers know who among their social circles has interest, there are some obvious drawbacks. The most obvious point is that drivers typically know and associate with people most similar to themselves. This is true if you look at demographics or profession, so word of mouth can reinforce the driver shortage by increasing turnover and not helping address inherent diversity issues in the industry. Since drivers are more likely to know other drivers, they may indirectly fuel the shortage by convincing their friends at other firms to come join them.

To address the need to recruit from a more diverse pool of potential applicants, research has looked into who to target and how to best target them. Historically, the literature is clear in its understanding that most truckers currently are white men, and the problems that this can impose. (Lemay and Taylor 1988) Because of that knowledge, minorities and older populations have been identified as target groups for truck driver recruitment. A common method that has

been proposed to reach these new groups is through media-based advertising like radio, TV and newspaper. Media advertisements to target new truck driving populations need to solve two main questions: 1)-messaging and 2)-targeting. With respect to the first question of messaging, the groups that firms are targeting have historically not been engaged in the profession. Thus, trucking companies need to do market research to figure out what message will resonate with these diverse groups. In terms of the second question of how to reach those groups, media is consumed differently across different locations and demographics. Radio stations could have dramatically different audiences based on their content or ownership and understanding how marketing media outlets are different is crucial for firms to effectively advertise. An informal survey by Lemay and Taylor (1989) showed that there were zero minority owned radio stations in California that carried any transportation related advertisements. Again, this section of literature is acutely aware of the lack of diversity in the profession. Lemay and Taylor talk about how trucking companies need to structure the content of their advertisements to make minority populations feel connected to the profession. (Lemay and Taylor 1989) Employment advertising is like any other advertising, message matters, and a firm has to target that message to most effectively deliver it to its customer segment. This begs the question about why this issue hasn't been solved yet. The stream of literature goes back over 30 years, but the same problems remain today. This research attempts to provide insights into the recruitment issue by analyzing what effect sociocultural and psychological factors could have in effective advertising of truck driving career opportunities to non-traditional groups.

Needs for Various Truck Driver Segments

As expected, pay is a major focus of driver recruitment. 78% of trucking companies frequently stress this when seeking new employees. (Southern et.al 1989) The study stated that

quality of equipment was the next highest factor, but there are other needs that might be more important to different potential employee segments.

Work-Life balance is an important criterion for Generation Z, born in 1997 or after, with about as many people in a CIO survey, 29% vs 26%, naming it as important as career advancement. (Florentine 2018) A common critique with truck driving is that it is tough to maintain a family life with the long hours away from home. The operational practices of a truck driving firm can counter that issue. Dispatchers can control workflow and allow drivers to be home for special events and possibly even be able to spend their rest hours at home. Good dispatcher relations have been linked to better driver retention. (Williams, 2011)

Workplace practices, employers, and career advancement can increase workplace commitment and retention. Williams (2011) identified three key groups of truck drivers. These three groups tend to focus on primary needs, relationships, and career advancement. Trucking firms need to structure their value proposition to perspective employees to balance the needs of these different groups. This research adds to the general body of research because it helps quantify people's opinions on what needs the general public doesn't think the truck driving profession currently fills.

Social Psychology Literature

Social Identity Theory

Social Identity Theory is a concept that first entered the psychology literature in the 1970s and 1980s through the work of Tajfel and Turner, but the general effect has been in psychological research for decades before that. The key tenant of social identity theory is that individuals derive some degree of self-worth from their membership in social groups. It follows

from this that people tend to favor their ‘ingroups’, groups they are connected to, over their ‘outgroups’, of which they are not a member. This finding is a popular basis for many explanations of how social dynamics work. It’s been shown to even affect our perceptions. In 1954, Hastorf and Cantril played the same tape of the annual Dartmouth-Princeton football game to students of both universities. The Princeton students saw Dartmouth make twice as many penalties as the Dartmouth students saw. The students in this instance constructed reality based on the lens of their ingroups. It also plays a role in stereotypes. A common potential explanation for the presence of stereotypes is that people attempt to elevate an individual’s ingroup in response to a perceived threat by some outgroup. In a 1997 study, Italian-American research subjects gave a fictional Jewish female job applicant significantly lower ratings and reported higher self-esteem after receiving negative feedback about their heritage, from a confederate, because they viewed outgroups as a threat. (Fein & Spencer 1997) This contrasts with the neutral ratings the fictional applicant received after the subject was given positive feedback. In this instance, the subjects were trying to protect the status of their ingroup by degrading a different group.

To build on this, a fundamental piece of social groups is that there is a shared characteristic. By default, ingroups tend to be identified by their shared characteristic which cognitively sets an expectation of what a member should be. For instance, if you ask an individual if a smaller man which wears glasses and writes poetry is an Ivy League poetry professor or a truck driver, they are more likely to say they are an Ivy League poetry professor even though there are so few Ivy League poetry professors and so many truck drivers that truck driver is the more probable answer. As Kahneman and Tversky (1973) described, people will pull the relative image that is easiest to identify with a characteristic. This is because it is easiest

for a person's brain to retrieve an image that supports a stereotype compared to something that breaks a stereotype. In a different Kahneman and Tversky experiment, a plurality of people thought a fictional person named Linda was more likely to be a bank teller involved in the feminist movement than a bank teller or in the feminist movement. The noteworthy observation in that result is that the subject's assessment violates the rules of probability because the probability of two things happening together has to be less than the probability of either event individual. (Kahneman & Tversky 1983) Our mind will bend mathematical reality to make assumptions that fit what is easy for our brains to retrieve. This stays true for both positive and negative characteristics. This interacts with the current transportation literature because perspective employees will expect their coworkers to match the most readily available picture they can retrieve from memory, and if that picture is one they don't think will accept them, it decreases the likelihood of them applying to work in the industry.

Social Identity Theory and Group Dynamics

Social Identity Theory also has implications for diversity and inclusion through group dynamics. This is primarily through two avenues, the first is through a phenomenon called outgroup homogeneity. Outgroup homogeneity is a psychology principle which states that people tend to view outgroups as one bloc while they see the diversity within their own ingroup. A general example which explains this dynamic occurs when members of one race have a hard time distinguishing between members of another race. Popular culture provides the best examples of this, for example, when the South Korean soccer team switched practice jerseys to throw off German World Cup scouts or when British swimmer Steve Parry was mistaken for Michael Phelps at a popular Beijing tourist area. This can affect social dynamics because one negative experience by a minority group member at the hands of majority group member can

have greater influence, because there is a tendency for the beliefs or actions of the one bad majority group member to be extrapolated to the entirety of that group. The key to bridging these groups is to create a common superordinate identity. A superordinate identity is the terminology for saying a shared ingroup. Shared ingroups expand the characteristics of a currently established group. For example, the English national soccer team players unite for a common goal and work cohesively as a team. This is despite the fact that individual players may represent clubs with fierce rivalries. This is well documented in the Olympics as well where historically underrepresented or marginalized groups are viewed as equals in pursuit of national pride. From a trucking perspective, this research shows that the social boundaries of what a truck driver is needs to be fluid where people from multiple ingroups can unite under the profession. Managers need to be aware of this psychology because it's up to them to establish an identity around trucking that's inclusive of all.

Stereotypes and their Effect on Self-Esteem

Being the minority in any field can bring unique challenges. This is especially true if the demographics are so concentrated, such as within the trucking industry. Trying to blaze a trail as a member of a new demographic in a group can have negative impacts on self-esteem. This is because group memberships affect our psychology through the ability of group membership to shape our sense of self. If an individual doesn't have a clear group membership, their self-esteem can be negatively affected because they can feel lost without a clear identity. (Greenway, et. al 2015) Prejudice has a potential to exist whenever there's a dominant social ingroup and a small and growing minority group. The members of the dominant social ingroup can bond over their shared characteristics, and this can create an environment where other groups feel excluded or outright rejected. This can create prejudice that hurts any workplace environment Rejection by

the dominant social group has been associated with a loss of sense of control which has been shown to increase the possibility of negative side effects. (Branscombe, 1999) There's been considerable research done on the psychology of minority experience regarding prejudice. While it would be logically reasonable to assume that groups that face a lot of stigma, the LGBTQ community as an example, would have lower levels of self-esteem, that gap is rarely observed. (Crocker & Major, 1989) While it might also be logical to assume that individuals facing prejudice would try to minimize whatever part of their identity that was being marginalized, research across multiple demographic groups has shown that recognition of group prejudice leads to greater identification with whatever part of their identity is receiving prejudice. (Branscombe, 1999) While this has good implications for personal psychology, this can create a cycle which creates an even more homogenous workforce. If an individual is facing prejudice in the workplace, they're faced with a choice when it comes to how to structure their sense of self. The prejudice they face has shown them that a piece of who they are is incompatible with their profession. For the sake of this discussion, let's use gender as an example. As a result of facing gender-based prejudice, a person would feel more connected to her identity as a woman, but that draws her away from feeling connected to her identity as a trucker. Eventually as these two components of her identity move farther and farther apart, she decides to leave the company. This can be true even when individuals are primed to believe that prejudice is likely and can affect people's actions leading up a decision. (Branscombe, 1999) The key to stopping this process is to show how all sorts of identities fit within the broader scope of a profession as discussed earlier. Blaming the prejudice on an external force is called an external attribution and is explained by the Social Attribution Theory.

Social Attribution Theory

Social Attribution Theory is a theory coined by Fritz Heider in his work *The Psychology of Interpersonal Relations* in 1958. The key point of this theory is that people can make two types of judgments to arrive at a causal explanation for events. An individual can make an internal explanation determining that some characteristic of their identity caused the result, or they can make an external attribution blaming an external factor. An internal attribution is a personal one while an external attribution is a situational one. This theory can affect individual decisions because attributions can have dramatic effects on personal self-esteem and how group dynamics work. Social Attribution Theory also carries managerial implications because attributions affect how someone feels like they fit in, and managers need to provide enough outlets that the good behaviors in the workplace can be attributed to the characteristics and culture a firm represents, while the bad behaviors can be attributed to individuals that can be disciplined.

Stereotype Threat

Stereotype threat is a decrease in performance in a task where a stereotype is historically involved. The most well-known examples are so called “race gaps” on intelligence tests which disappear when it is reframed as something other than a test of intelligence. An unexpected example is how white and black participants scored differently on a nine-hole game of mini golf based on if the game was framed as a test of sports intelligence or ability. (Jordan and Benjamin, 2007). The concept of stereotype threat can be succinctly summed up in a quote by former Texas State Senator Rodney Ellis which says, “I knew I was just as intelligent as everyone else... but for some reason I didn’t score well on tests. Maybe I was just nervous. There’s a lot of pressure on you, knowing that if you fail, you fail your race.” This gap is noticeably more pronounced when there’s a stereotype that is well known and the individual cares about their performance.

When black and white college students were given GRE test questions, black students scored lower compared to white students when told this was a test of intelligence while no gap existed when the students were given no previous instruction. This effect has been shown through several applications and studies. (Steele & Aronson, 1995) A key fact of the above examples is that there was no conscious effort for lower performance. In these studies, the subjects didn't report a conscious desire to change their behavior. Trying to disprove a stereotype can have an unintended consequence that lowers performance. This carries managerial implications because minorities entering profession may face extra pressures from feeling like they represent their entire group which could affect performance in the wrong workplace environment

Contribution to the Knowledge Base

This research adds to the social psychology literature by applying established theories within a new context. While these theories have been rigorously tested in academic settings, less research exists on how they apply within an established industrial-organizational framework.

Methodology

Overview

The purpose of this study is to test if people's perceptions of opportunities in transportation jobs for individuals differ based on what social group they are perceived to be a part of with a focus on seeing how that compares to the generally assumed truck driver stereotype of a straight white male. This was done by using a manipulated experimental vignette technique where individuals were asked to identify how they viewed an employment opportunity for a fictional friend and report their opinions on areas of the transportation industry. At the conclusion of the experiment, subjects were asked three demographic questions which collected information on gender identity, if they had a major or minor outside of Fisher, and if they knew a

truck driver. The methodology used to test hypothetical helping behavior was modeled off of the work of Garcia and Darley et. al (2002) that focused on the Implicit Bystander Effect.

Subjects

This experiment was administered to students at The Fisher College of Business (FCOB) in The Ohio State University. The subjects were 439 students who received this study through contacts in the FCOB. The subjects were 58% male and 41% female, which is comparable to the demographics of FCOB. In the interest of simplicity, each student received only one condition and a manipulation check was present to ensure accuracy for each condition. There was a goal to have at least 50 subjects for each of the four conditions, and that goal was met.

Procedure

Participants completed a twenty-two-question experiment on the online platform Qualtrics. In the consent form before the beginning of the experiment, they were told via instructions that the purpose of this survey was to provide feedback to a fictional friend who was looking at a new job opportunity after getting laid off from their job. They were also informed that after completing the questions regarding their opinions on this opportunity for their friend, they would be asked to provide input on what their thoughts on different aspects of the trucking industry.

There were four distinct conditions of this experiment with the fictional friend being different in each section. The manipulations were designed to change either the gender, ethnicity or both of the fictional friend. This was setup in a two by two design. Statistical analysis was done between and within pairs. See the table one below for reference on the four conditions. Each condition used an almost identical biography with the name being different in each condition and one sentence being added to the ethnicity manipulation.

Gender Manipulation	Ethnicity/Gender Manipulation
Male Condition “Alexander”	Argentinian Male Condition “Juan”
Female Condition “Alexandria”	Argentinian Female Condition “Juliana”

Table 1: Experimental Levels condition

The Alexander condition was designed to describe a male who had a name which would not lead to an inference about his ethnicity. This condition acted as a defacto control which can be compared to other sections. Alexander was chosen because it is a popular, gender specific name which carries no clear ethnic connotation in the US. Alexander was the 47th most popular baby name according to the Social Security Administration’s statistics. (ssa.gov) The Alexandria condition was designed to indicate a female without a clear ethnic connotation. The name Alexandria was chosen to make the name as similar as possible to the Alexander condition which was its direct comparison. Alexander and Alexandria are similar in both phonetics and connotations. The Juan condition described an Argentinian-American male. Juan having an Argentinian heritage was chosen because while the Argentinian-American population is not the largest population among Latino/Latina Americans in the United States, it was important to avoid any possible unconscious affects that could occur if Juan had immigrated from Mexico or Central America. Thus, it is more likely to avoid any stereotype influence from the current political environment. The research team decided to make the gender/ethnicity manipulation for the Latino community because cross border import/export operations with Mexico is an important part of the globalized United States economy, and trucking companies with northbound routes from the border into major US cities would be located in Arizona, California and Texas which have higher populations of Latin Americans compared to the general US population. The ethnicity of Juan was reinforced by one sentence added to the biography which said. “Juan immigrated to the United States from Argentina when he was young.” The name Juan

was chosen because it is a popular name for men from Argentina. The Juliana condition described an Argentinian female. Her heritage was chosen for the same reasons as Juan. The name Juliana was chosen because it a popular name for women in Argentina and it is similar to Juan in both phonetics and connotations.

After completing the consent form, the survey was broken down into six sections, each of which were separated by a page break. The first section contained a short vignette which contained information on their friend and the instruction to use this as a basis for completing the first section of questions. The characteristics of the fictional friend were chosen to be relatively androgynous to avoid any additional activation of gender stereotypes beyond what was activated by the name. By having a biography that was relatively neutral on the masculinity-femininity spectrum, individual conditions could be compared with the most confidence that this effect was due to a difference in perceived gender. This section contained no questions and is sampled below for the Alexander condition.

“Alexander has been your friend for 15 years. He loves Ohio State Football and enjoys fishing and playing tennis. He has two kids aged 8 and 10. He's 45 years old, and he and his wife are hardcore soccer parents for their kids. Alexander just got laid off from his job because the local furniture store went out of business. He was looking through a jobs website and noticed an advertisement for a truck driver position. Alexander is intrigued because this position would provide a steady income source, but he has never worked as a truck driver so he asks for your advice. Alexander obtained a license to drive a commercial truck while doing local deliveries at the furniture store.”

The next section contained the advertisement that the “friend” saw. The advertisement is from an actual Holland America advertisement found on Indeed, but the name on the advertisement was changed to Viking Trucking to avoid any potential effect if someone was familiar with Holland or their corporate culture. This section also contained no questions and is sampled below.

“With our continued growth and success, Viking is seeking Local CDL-A Drivers in our Columbus Terminal. Vikings Drivers generally work Monday - Friday. Once you begin the position, the starting wage is \$20.87 per hour rising to over \$24.00 after just two years of experience, plus overtime. This position includes company paid health care premiums. Viking offers outstanding health care for our drivers and their families.”

The third section was the first portion in the survey that included questions. The questions in this section were specific to the friend. There were six questions that aimed to analyze how individuals felt about how the friend would fit into the company and their expectations of the friend’s employment with the firm. Below is a sample of this section of the survey for the Alexandria condition.

1. *Do you think Alexandria would enjoy working for this company?*
 - a. *Yes*
 - b. *No*
2. *Do you think the employees of Viking Transportation would welcome Alexandria?*
 - a. *Yes*
 - b. *No*
3. *Do you think Alexandria would be committed to this company?*
 - a. *Yes*
 - b. *No*

4. *Do you think Alexandria could find someone with a similar background to them?*
 - a. *Yes*
 - b. *No*
5. *Would you recommend that Alexandria pursue employment at this company?*
 - a. *Yes*
 - b. *No*
6. *If Alexandria were to accept a job at this company, how long do you think she would work there?*
 - a. *<6 months*
 - b. *6 months-1 year*
 - c. *1 year- 2 years*
 - d. *>2 years*

After moving to the next portion, the fourth section of the experiment was meant to test the subjects' impressions of the truck driving industry. There were seven questions in this section that focused on a couple key areas. The first two questions covered people's knowledge about work-life balance as a truck driver. The next three questions aimed to test people's opinions on social dynamics and diversity and inclusion in the trucking industry. The final two questions were free response and aimed to improve the knowledge base by providing an ability for subjects to provide feedback on what they think about the industry. Below is this section of the survey

1. *Do you think someone could successfully have an active family life while being a truck driver?*
 - a. *Yes*
 - b. *No*
2. *Are you aware that there are truck driving positions that have traditional 8-5 hours?*
 - a. *Yes*
 - b. *No*

3. *Do you think the Truck Driver community is accepting of the LGBTQ Community?*
(Scale of 1-5)
 - 1 (Not Accepting at all)
 - 2
 - 3 (Neutral)
 - 4
 - 5 (Very Accepting)
4. *Do you think the Truck Driver community is accepting of gender diversity?* (Scale of 1-5)
 - 1 (Not Accepting at all)
 - 2
 - 3 (Neutral)
 - 4
 - 5 (Very Accepting)
5. *Do you think the Truck Driver community is accepting of racial or ethnic diversity?*
(Scale of 1-5)
 - 1 (Not Accepting at all)
 - 2
 - 3 (Neutral)
 - 4
 - 5 (Very Accepting)
6. *Please provide an estimate for what percentage of the truck driving community is male.*
 - a. *Text box to enter response*
7. *What would be your biggest concern about being a truck driver?*
 - a. *Text box to enter response*

The fifth section was a manipulation check. This single question varied based off of what was manipulated. For the Alexander and Alexandria condition, the manipulation check was a single question about gender identity. For the Juan and Juliana condition, the manipulation check was two questions, one about their ethnicity and one about their gender identity. Below is this section from the Juan condition:

1. *What is Juan's gender identity?*
 - a. *Male*
 - b. *Female*
 - c. *Nonbinary*
 - d. *Other/Not listed*

2. *What is Juan's ethnicity?*
 - a. *Caucasian*
 - b. *African-American*
 - c. *Hispanic or Latino*
 - d. *Other/Not Listed*

The sixth and final section of the survey was a demographics section which recorded key demographics which could affect the results. Each question was meant to record participant responses for the key demographics. The four questions attempted to identify how gender identity, major, non-Fisher degrees, and personal connection to the truck driving profession. Gender identity was identified as a key factor because women do not fit the perceived stereotype of a truck driver of white, older, male, and men and women may respond to scenarios differently. Subjects were also grouped by if they had a non-business major or minor because of the potential for subjects' academic backgrounds to affect how they viewed the situation presented. Subjects' personal relation to the truck driving industry was identified as a key factor because they would likely have different knowledge of the industry compared to the general population. Below are the questions presented in the survey for all forms:

1. *What is your gender identity?*
 - a. *Male*
 - b. *Female*
 - c. *Nonbinary*
 - d. *Other/Not Listed*
2. *What is your major?*
 - a. *Logistics Management*
 - b. *Operations Management*
 - c. *Other*
3. *Do you have a major or minor outside of Fisher?*
 - a. *Yes*
 - b. *No*

4. *Do you know anyone that works in the trucking/transportation industry?*
 - a. *Yes*
 - b. *No*

Hypotheses

The research hypotheses were as followed. For each question, it was predicted that males would have a greater percentage of yes responses than females, subjects with a major or minor only in the Fisher College of business would have a greater percentage of yes responses when compared to subjects that had a non-Fisher major or minor, and subjects that knew a truck driver would have a greater percentage of yes responses than subjects that did not know a truck driver. This was predicted to hold true with the two forms with male applicants have a higher percentage of yes responses, and the two forms that were ethnically ambiguous also having a higher percentage of yes responses. It was also predicted that the subjects would rate trucking at 3.0 or less on all the diversity and inclusion questions.

1. **H1-H5:** For each question, it was predicted that males would have a greater percentage of ‘yes’ responses than females, due to the demographics, both real and stereotypically of truck drivers.
2. **H6-H10:** Subjects with a major/minor only in the Fisher College of business would have a greater percentage of yes responses when compared to subjects that had a non-Fisher major/minor because they are likely to have a more diverse set of passions outside a business setting.
3. **H11-H15:** Subjects that knew a truck driver would have a greater percentage of yes responses than subjects that did not know a truck driver because they may have knowledge about the industry beyond the public stereotypes.

4. **H16-H30:** The above results would hold true for the male applicants have a higher percentage of yes responses than for female applicants.
5. **H31-H45:** The above results would hold true for the ethnically ambiguous applicants have a higher percentage of yes responses than the Latino Applicants.
6. **H46-H48:** Subjects would rate trucking below 3.0 on all Diversity and Inclusion questions.

Response Data per Condition

The survey was distributed to two sections of Introduction to Logistics Management with half of each class receiving a condition. The goal was for each condition to have at least 50 responses and this was achieved with a total of 439 subjects completing the experiment. The table below summarizes the basic demographic results for each condition.

Condition Name	Total Responses	Men	Women	Other
Alexander	104	59 (57%)	44 (42%)	1(<1%)
Alexandria	115	71 (62%)	43 (37%)	1(<1%)
Juan	113	67 (59%)	45 (40%)	1 (<1%)
Juliana	107	57 (53%)	48 (45%)	2 (2%)

Table 2: Breakdown of respondents by gender

Results and Discussion

Subjects did not answer in the hypothesized pattern. It was expected that all demographics of respondents would have a higher percentage of “yes” or favorable responses for the male hypothetical applicants than the female ones. It was also predicted that the target populations would view trucking more favorably for the ethnically ambiguous friends than for

the ones with Argentinian heritage. Hypotheses one to twenty were all rejected. To summarize the expected hypothesis, for each gender of fictional friend, the demographics in population group one, would have a more favorable responses than the populations in group two.

Group 1	Group 2
Males	Females
Subjects with a major or minor only in Fisher	Subjects with a non-Fisher major/minor
Subjects that know a truck driver	Subjects that do not know a truck driver

Table 3: Subject Demographic Pairings

The underlying rationale behind creating those hypotheses was that the group one demographics would feel more comfortable with trucking and thus rate the profession more favorably. As mentioned in the introduction, most truck drivers are men, thus creating the potential for ingroup bias. Subjects with a non-business major or minor may have more critical views of trucking because they've been exposed to more non-industry viewpoints and could have more nuanced impressions of the industry, especially considering the trucking industry is covered within the required core logistics class at FCOB. It was expected that public impressions and stereotypes of the trucking industry are worse than what someone with "inside knowledge" would have, thus leading to the hypothesis that they would rate trucking more favorably.

Instead, the pattern was more within demographics regarding how they view an opportunity in trucking based on the gender of the applicant. As shown in table 3, the Group One demographics tended to make similar evaluations of the job opportunity regardless of gender of applicant while Group Two demographics tended to make significantly different evaluations based on the gender of the applicant. The difference between the percent of subjects responding yes for male hypothetical applicants and for female hypothetical applicants is defined as the

spread. This large difference is particularly true for gender and academic diversity while past knowledge of the trucking industry showed unique patterns which will be discussed more thoroughly later.

For four of the five questions, there was statistically significant differences on the spread when looking at the paired demographics. Those four questions will be discussed in depth later. The one question where there was no significant difference was “Do you think the employees of Viking would welcome *{Friend Name}*?” For this question, each subject population had a statistically significant difference between how they viewed male and female hypothetical applicants, but the spread did not vary between populations. The spreads for two of the three pairs of demographics was less than one percent and the other pair was larger but not statistically significantly different.

The most likely explanation for this is that there are upper and lower bound effects. Overall 95% of subjects answered that they thought the employees of Viking Trucking would welcome a male hypothetical applicant with the given biography. Across populations, that percentage varied only one or two percentage points. This stabilizes the spread by setting an upper bound. The responses for female hypothetical applicants showed little variability. Overall 83% of subjects answered that they thought the employees of Viking Trucking would welcome a female hypothetical applicant with the given biography. Across populations, that percentage varied only one or two percentage points. The most logical explanation for this stability is that there is a lower bound anchoring because subjects assume that people will follow generally accepted rules of human behavior and not be openly hostile to new people. In my opinion, the upper and lower bound anchoring stabilizes the spread which creates the observed results.

Gender Differences

Men and women showed major differences on a few factors. Women had a 10% or greater difference in favorability ratings for opportunities for male and female applicants on every category while men only had a 10% or greater difference in favorability ratings on two of the five categories. This is shown in Table 7.

Question four was a disguised way of asking subjects what they thought the trucking industry looks like. It can be inferred what a subject thinks the trucking community looks like and their background by asking if a hypothetical person fits into that picture. As shown by the rather large spreads of 21% for male subjects and 29% for female subjects, the public image of trucking is that it is dominated by men, which is true. As seen throughout, ethnicity did not play a factor in how people evaluated a candidate.

Questions one and three on the survey were about employee commitment and if they would enjoy working at this company. An interesting result is that more female subjects tended to have the belief that male applicants would enjoy trucking more than the male subjects did. Gender was not a consistent factor in subject's beliefs on how a female applicant would fit in the truck driving profession. On four of the five questions, female subjects responded with a lower favorability rating than what the male subjects responded for the female applicants, but this difference was mostly small and statistically insignificant. Almost 80% of females believed a male applicant would enjoy working in trucking versus 66% of male subjects. For comparison, both men and women put the likelihood that a female hypothetical applicant would enjoy trucking at about 60%. These results seem to indicate that women seem to view the experience as a truck driver as gender dependent while men seem to view experiences in trucking as relatively gender independent.

The fifth question of the survey exemplifies that point. This question is tied directly to a deliverable, “would you recommend *{Friend name}* pursues employment at this company?” The male subjects responded in a gender independent way. Male subjects reported a 2.5% spread between recommendation to hire for male and female applicants. In contrast, female subjects reported a 22.7% spread. These results imply that a woman looking to join trucking would receive very different feedback than men based on who they talked to.

Academic Diversity

To examine if a subject’s views on trucking might be affected by being in business school, they were asked if they had a major or minor outside of Fisher. The rationale behind this was that subjects with a broader set of academic experiences or passions may behave like a different population and potentially better mirror how the general public would behave in these circumstances. Subjects that have a more concentrated background in business may report a view of trucking more favorably than the average individual.

The results were surprising in that subjects having a major or minor outside of business was the strongest predictor of different results. The average difference in the spread between subjects with a major or minor outside of Fisher and those with only Fisher degrees was 12%. For comparison, the average difference between men and women was 10%. From a group demographics perspective, on average about 50% of female subjects had a major or minor outside of Fisher while about 30% of men did. This combined for an end result of this population being on average between 45-50% male and 50-55% female depending on the condition. The results from this survey seem to indicate that this mixed gender group has the strongest beliefs on if the experience in trucking is gender independent.

Subjects with a non-business major/minor responded similarly to female subjects. The scores between the two groups had a correlation of 0.72, while the students with only business major/minors responded similarly to those of the male subjects, which had a correlation of 0.88. As mentioned earlier, the average difference in spread was 12%, which is higher than the gender difference and a weighted average of the difference in gender, roughly 5%.

There could be several different reasons for the similarity between groups. This population could be drawing from a broader set of personal experiences and knowledge which gives them a more critical view of the trucking industry. Fisher College of Business professors could present the trucking industry in a more favorable light compared to the general public because of their experience and passion for the subject, and subjects hearing differing voices from individuals with different experiences could provide a counterbalance. There could be a twofold explanation. The first is that people with a broader background will be less likely to think about applying skills in narrow ways. In trying to explore different paths, these subjects would be more likely to think of alternate ideas for what career their hypothetical friend could pursue employment in and feel less motivation to steer them into a more traditionally industry centered field. The second explanation is that these subjects varying interests are likely to give them a unique evaluative criterion where they are pulling from experiences with a more diverse population of people. As discussed later, both women and subjects with a non-Fisher major and minor rated trucking the lowest on diversity and inclusion metrics, so it stands to reason that this is an important factor with both groups. Throughout the results, student that have a major or minor outside of the Fisher College of Business reported results that showed a strong belief that an individual's experience in trucking was dependent on gender and this group generally rated trucking less favorably among all the demographics.

Knowledge of the trucking industry's effect on responses

The final demographic question was, “Do you know someone that works as a truck driver?” The rationale behind this question is that subjects who know a truck driver are relying on personal experience to make a judgement on how a hypothetical applicant fits in the truck driving profession while subjects who don't know a truck driver are more likely to rely on public perception and stereotypes about the industry to make their judgements.

The results with these two groups were a surprise for multiple reasons. It was expected that subjects that know a truck driver would give more favorable responses across the board compared to subjects that didn't know a truck driver. It was also expected that subjects that knew a truck driver would have a more gender-independent view of the experience of being a truck driver. The rationale behind those hypotheses was that the stereotypes around trucking were likely worse than reality. Neither hypothesis held true, but the results showed unique patterns which are worth discussing further.

Knowing a truck driver did not make a significant difference for how a subject evaluated a truck driving opportunity for a hypothetical male applicant. The scores between the two populations were not significantly different across questions. Subjects who know a truck driver did generally report higher spreads than subjects that did not know a truck driver, and that was mostly because these subjects rated trucking less favorably for women than subjects who do not know a truck driver. While this supports the view expressed by other populations, that the experience in the trucking industry is gender dependent, there is one question where subjects that know a truck driver deviate from the pattern. On the question asking if they would recommend that this hypothetical friend pursues employment with Viking, subjects who know a truck driver make the recommendation at roughly the same rate, with a spread of 5.4%, for each gender, and

they recommend that a female applicant pursues employment at this company at a significantly higher rate than all but two population, subjects with only business major/minors and men. For comparison, subjects that did not know a trucker had a 13.5% higher recommendation rate for male applicants compared to female applicants.

Subjects that know a truck driver paint a unique picture of the industry's inclusiveness. Their responses show a gender dependent experience in trucking, but the subjects also believe that this is a profession where anyone can make a living, and they are likely to recommend the job to someone interested, no matter the gender of the applicant.

Work-Life Balance

At the end of the first section of the survey, the subjects were asked two yes/no questions on family life and work hours in the truck driving industry. These questions were designed to get an empirical look at general perceptions of work-life balance in the truck driving industry given its growing importance for younger employees. The results were examined with regard to what experiment form they were given, but there was no significant difference between forms.

Because of that, results were analyzed on the aggregate population level.

57% of subjects responded that they believed it was possible to have a successful family life while being a truck driver. Only two populations showed statistically significant deviation from that average. 66% of subjects that know a truck driver responded that it was possible, but only 51% of subjects that did not know a truck driver responded that it was possible to have a successful family life. This result seems to indicate that the public perceptions may be incorrect or at least overly pessimistic about being a truck driver as it relates to subject, but the family experiences of truck drivers are not reaching the general population.

LTL truckload companies have positions with more standard hours, so the second question asked if they were aware that positions like what LTL firms would offer exist. 44% of subjects responded that they were aware of truck driving positions with 8-5 hours. These positions are most often found in the LTL trucking industry and offer a more stable situation if you're trying to raise a family. This number was surprisingly low since the job posting they were reading was taken from a real LTL advertisement which states the driver would be home every night. Only 52% of subjects that know a truck driver were aware of truck driving position with traditional hours.

The results from these two questions give empirical support to the notion that public perception that truck driving is exclusively a long-haul profession where drivers spend long hours on the road and see their family infrequently.

Diversity and Inclusion in Trucking

This research gathered data on how subjects perceived attitudes in trucking with regards to gender, sexuality/gender identity, and racial/ethnic diversity. The information gathered was used to quantify where public perception lies regarding attitudes in trucking towards different minority groups.

The first thing that stood out was that perceptions of attitudes in trucking were different when it comes to race and ethnicity. Of the three categories that were asked about, racial and ethnic diversity is the only category that subjects thought truck drivers were accepting of. With a rating of 3.7 on a five-point scale, perceived attitudes on racial and ethnic diversity were almost a full point higher than any other category asked. The shape of the response distribution was also unique. The majority, 58% of responses, were a four or five which classifies as rating trucking as "accepting" or "very accepting." These results hold true across all populations. This was a

surprising finding and explains why one of our predicted results from the initial five questions did not hold true.

One of the sets of hypotheses was that there would be an effect on how favorability a subject viewed trucking based on the ethnic background of the applicant. This predicted effect was seen only on one question. When asked if the hypothetical applicant would be able to find someone with a similar background to them, subjects responses showed a significant difference between the applicants with Argentinian heritage compared to the ones that did not. This difference just shows that there's a public perception that there is not a significant minority population in trucking. This perception though does not translate to a race-dependent view of the trucking experience, just an acknowledgement of the current demographic makeup of the industry.

Subject responses for truck driver's attitudes towards the LGBTQ community and women followed relatively similar patterns. Subjects thought trucking was generally not accepting of both demographics, and the pattern was much more of a leftward sloping distribution with about two times as many subjects rating trucking as "Very unaccepting" or "unaccepting" than "accepting" or "very accepting." The confidence interval for acceptance of the LGBTQ community is (2.85,2.86) and for women (2.89,2.90). While this data showed a strong neutrality bias, the mode in each instance was three, perceived attitudes are significantly below neutral towards these groups. In combination with the results on perceived attitudes towards race/ethnicity, subject responses paint a clear picture on the what people think the beliefs of truck drivers are.

There were several interesting demographic specific results from this section. The first is that subjects with a non-business major or minor rated trucking as less accepting than the

average subject did. In fact, subjects with a non-business major or minor had the lowest scores when it came to perceived attitudes in trucking compared to any other demographic by a statistically significant margin. There could be multiple different reasons for this result, but when combining this with the strong effects found with this demographic in the first set of questions, it appears like openness is an important factor for this group, and this could be a definite direction for future research. In addition to the results discussed above, subjects that only had a major or minor in the Fisher College of Business scored significantly above average and were the highest scoring group out of any demographic.

Men and women showed one key difference in their responses regarding perceived attitudes in trucking. Men viewed the trucking industry as significantly less accepting than of the LGBTQ community than women, and women viewed trucking as significantly less accepting of women than what the male subjects did. The most likely explanation for lower rating by female subjects for gender diversity is the unique concerns that women have about working in trucking. When asked to name their biggest concern about being a truck driver later in the survey, female subjects were the only ones to report concerns about harassment and personal safety. For ratings on the LGBTQ community, the only major difference explaining the change is a difference in the distribution shape. Female subjects responded with more fives by percentage which appears to play a part in the small difference between groups. Men and women did not report significantly different perceptions for truck drivers' attitudes on race and ethnicity.

Subjects that know a truck driver were a particularly important group to analyze in this question. The main reason behind this is that the subjects that don't know a truck driver are relying mostly on the perceptions or stereotypes of what the industry is from an outsider's perspective, but the subjects that know a truck driver are relying on unique, personal experience.

The biggest observation is that subjects that knew a truck driver perceived more accepting attitudes in trucking than the average subject on race/ethnicity and gender, but these subjects perceived less accepting attitudes in trucking towards the LGBTQ community than the average subject. Responses by this demographic group indicate they believe stereotypes around trucking have more nuance than what the public perceives, but it's important to remember even on issues related to gender, where this group believed trucking was more accepting than the average subject did, the average score was still below three, which indicates trucking still has plenty of work to do.

Demographic Concerns about Becoming a Truck Driver

Subjects were asked to name their biggest concern about being a truck driver at one point in the survey. This was a free response question and the prime method of analysis was to run the responses through a word cloud software to aggregate the most frequent responses. Each word cloud is presented below, but the overarching theme between them is the concern about how to manage family life and work-life balance. With every demographic, the most used word had something to do with work-life balance. Words like “long,” “hours,” “family,” “time,” and “away” were all prevalent across demographics. Safety was also a big concern with words like “accident,” “safety” and “harassment.” Those form the two general categories of needs that make up over 90% of concerns across the subject base, and those concerns will be discussed by population below.

The word cloud assembled by responses by male subjects is shown above. Male subjects' concerns about trucking are also mostly focused on work-life balance and safety. The unique thing about how the male subjects responded was that they generally were concerned about a different part of safety. They worried much more about safety issues involving getting in accidents and in particular caused by monotony. "Falling asleep" and "boredom" are two phrases which are unique to this demographic. Males are generally concerned about the lack of stimulation with trucking and think that could inhibit their focus and performance. This implies trucking needs to figure out how to nuance their message to this group. This career certainly won't be for everyone, but there's avenues where drivers can experience more human interaction.



Figure 3: Subjects with a Non-business Major/Minor Word Cloud

The word cloud assembled from the responses that subjects with a non-business major or minor is shown above. This population was of interest because of the strong responses they gave in earlier sections of the study, and how they stood out as having some of the most negative views of trucking on many factors. Surprisingly, nothing stood out as particularly noteworthy with this group. Safety and work-life balance again were the two biggest factors, with family used word. More research will have to be done to learn more about why this demographic reacted the way they did.



Figure 4: Subjects with only Fisher Major/Minor(s) Word Cloud

The world cloud assembled from responses by subjects with major/minor(s) in business is shown above. This demographic followed the usual trends among a particular focus on safety and work-life balance. Family was the most cited concern. I was hoping that there may be differences between this group and the subjects that have a major or minor outside of the Fisher College of Business or between this group and the whole which may provide insight into why this demographic rated trucking so comparatively well and/or subjects which had a non-business major or minor rated trucking so unfavorably, but it does not appear like there is anything clear that stands out. The biggest conclusion to draw from analyzing these two demographics is that no matter what academic background a college student has, how to have a proper family life is the biggest concern they have, but concern about this subject is not tied to any direct difference in how an individual evaluates trucking.

The word cloud assembled from the responses by subjects that know a trucker is shown above. The biggest takeaway from this section is that family is the number one concern. This is noteworthy because by a significant margin, subjects in this demographic said it was possible to have a successful family life while being a truck driver. The most likely explanation for this that the subjects in this group believe it's possible, but they aren't sure they can do it. They believe it can work for some people they know, but their version of the life they want isn't possible with the sacrifices that they've seen people they know make. That attitude is likely more generationally based and will become more of an issue for trucking as older generations reach retirement.



Figure 6: Subjects that don't know a Truck Driver Word Cloud

The word cloud assembled from the responses by subjects that do not know a trucker is shown above. Again, this demographic's biggest concern was family and work-life balanced focused. The noteworthy observation in this group is that "asleep" and "boredom" are once again frequently used words when they were not by subjects that know a truck driver. This would imply that being a truck driver is a more interesting career than public perception might make it appear to be. This is an area of opportunity for trucking firms because it shows that firms have an opportunity to make their pool of potential applicants bigger by highlighting different parts of the experience of being a truck driver.

Subject's biggest concerns about being a truck driver are varied but show some common themes. Every demographic group is concerned about how to have a successful family life if they were to enter the profession and most are concerned about their safety in some way. In particular for women, the perception of sexism and hostility in the workplace is a big concern

which needs to be addressed. This section of the study did present one area of opportunity for trucking firms though. There is a perception that being a truck driver is a very boring job, but that doesn't seem to hold true with the people that have personal knowledge of what life is like in the industry. Changing the messaging the industry puts out could be a beneficial advertising technique to counter public perception. For example, during an informal interview I had with a 30-year veteran LTL driver in the Cincinnati area, he told me that he actually had a dock manager apologize to him for having to refuse a heavily damaged shipment because the dock manager didn't want to create extra work and hassle for the driver. The two had seen each other most workdays for many years and developed a friendship. Highlighting stories like that could provide a successful avenue for truck driving companies to make their job appear more appealing to the public.

Expected Time Employed

The last result I wanted to highlight was how the expected time employed changes based on the demographics of the applicant. This is one of the clearest signs that subjects view trucking as a man's profession which will potentially weed out people that don't fit the stereotype. As shown in the graph below, the distribution is centered around 6-12 months of expected employment for the female applicants while the distribution is centered around >2 years for the Juan condition with over 70% of subjects stating a number greater than two years in the free-response Alexander condition. These results hold true across subject demographic. This shows a clear difference in how the opportunities for female applicants are being evaluated. It's viewed as much more of a stop-gap profession or temporary job than a full career, and that can shape the potential applicants that firms get and the expectations people have for the job

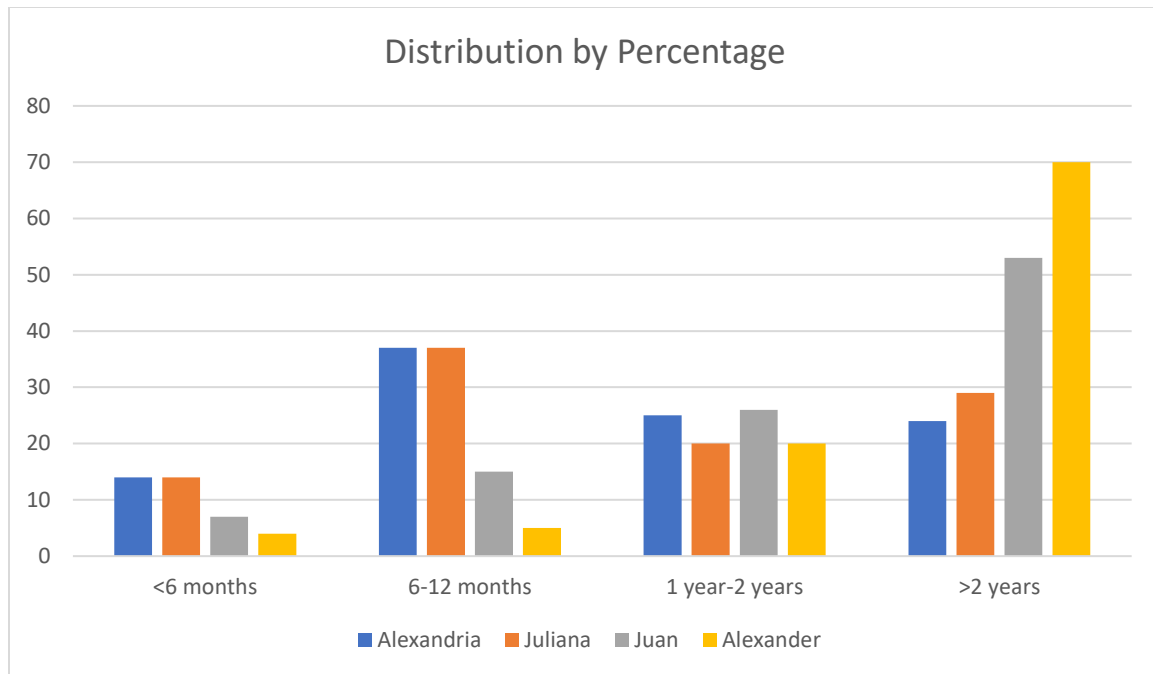


Figure 7: Predicted Employment by survey form

*due to a Qualtrics coding error, the Alexander condition was accidentally asked as a free response

Conclusions

So how can these results be translated into solutions to help solve the truck driver shortage? The data from this paper has shown that college age subjects perceive trucking as having issues with acceptance of minority communities, but racism is not perceived to be an issue in trucking. Women fear they will face sexism, misogyny, and potentially even violence if they were to become over the road truckers. Men and people less familiar with the industry are concerned about being bored and quickly tiring out. Most subjects fear they won't be able to have a successful family life if they enter this profession, which is of increasing importance for younger generations of workers. Solutions to these problems can generally be classified in three categories: Strategic, operational, and marketing solutions.

Corporate Strategy Solutions

There's a public perception that it's hard to have a successful family life, and that's a big concern for a significant amount of people. The research in this project clearly shows that. For a full truckload carrier (TL), that presents a clear obstacle. To solve this, companies may need to turn to untraditional business strategies. A traditional approach to full truckload shipping is long sequences of routes for over the road truckers which good last multiple weeks. TL carriers may have to solve this problem by using a network/terminal setup similar to the LTL industry. If drivers exchange trucks at defined relay points, they can keep driver distances within one day drive of working at their home address and guarantee more family time. Also, shifting more available trailers to contract loads allows for consistent scheduling which can be concentrated on shorter routes. A third way to increase driver family time would be to make use of strategic alliances. This is popular within the airline industry and would work roughly the same way. It's not operationally efficient for an airline like United to fly to every airport in the world. There's too much cost and complexity, but by forming the Star Alliance with 26 other airlines, they can utilize ridesharing and expand their reach to better the customer experience. A strategic alliance in trucking would work similarly. By utilizing greater integration between companies, trailers scheduled to go on long routes could be transferred between companies if there was no terminal beyond a certain point. This would allow both companies in the alliance to keep their freight moving while offering better route availability to drivers.

For the LTL providers, this is not as much of an issue. They can provide a consistent schedule with traditional hours if a driver is in the right role. For these companies, the answer to providing a better home life revolves around marketing and not business strategy.

People don't perceive trucking as an open, accepting environment. Less than one in five subjects thought truck drivers were accepting of the LGBTQ community. Women reported being concerned about facing sexism and sexual harassment, and subjects generally believe that the experience of being a truck driver varies based on gender identity. As a member of the LGBTQ community that has worked at a transportation firm, I can attest that I have experienced some of these issues that the subjects bring up. To fix these problems with their image and atmosphere, change needs to start from the top. It's common knowledge in psychology that authority figures shape attitudes for a group. A young child learns to root for Ohio State and against Michigan because they see their parents do it. Social observation of authority is something we're genetically hardwired to do. The leader of an ingroup has significant influence in what the rules and norms are for that group. They set the tone about what is acceptable, what is not, and who the group is. If diversity and inclusion is not an important organizational value for the leaders of the organization, then it won't be an important value for the everyday employee. Even if the employees may not be predisposed to be more accepting, they will look to their leaders to set the tone for their companies. In Milligan's famous electric shock experiment, a majority of subjects delivered what they thought was fatal levels of electric shock to a researcher because an authority figure told them too.

Currently diversity and inclusion are not a big consideration in the transportation industry as a whole. Out of the five largest full truckload transportation companies, one has a page on their website, and that company, JB Hunt, put it on there after losing a fight to activist investors which wanted the board to add the LGBTQ community to their non-discrimination policies (AJOT). On the LTL side of the industry, it is definitely better with two of the largest players, FedEx Freight and UPS Freight, having LGBTQ protections, but those companies also operate

under the umbrella of larger, more diversified transportation companies. Old Dominion Freight Line was sued in 2008 for firing a transgender trucker for “impersonating a woman.” (ACLU)

Starting at the top levels of their companies, leaders in transportation need to be the ones setting the tone that they want their companies to represent the country as a whole. Executives can structure initiatives to broaden their recruiting base through affirmative action programs. Right now, inclusivity isn’t a core value of the industry. Until companies leverage their power as corporate citizens for social change in their workforce. These problems won’t disappear because the frontline workers’ idea of what makes up their ingroup will not change.

Operational Solutions

Operational solutions are much more focused on terminal life and human resources policies. While the senior leaders and executives set the tone at the company for what is acceptable, the managers at the terminal or station level set the tone for what is tolerable. Social norms guide rules and behavior. If at a terminal level, there’s general rules that certain language and actions are not acceptable, then it sets a tone where minority groups know that they have a place and other group members will stand up for them. It shifts the attribution from a minority group member blaming the industry to a group member blaming an individual. In addition, strong social norms mean that an individual doesn’t have to view their personal identity and work identity as being mutually exclusive. To use a sports analogy, this is the same psychological reason for why rivalries between players from different soccer clubs are rarely an issue on the national level. The social norm is one of a superordinate identity, the country they play for, that unites the group. At a terminal level, diversity and inclusion needs to be viewed as a matter of having the best workplace possible to achieve the final goal of serving the customer as best as possible. Managers can set the tone that everyone that works there is working to

complete their goal of serving the customer as best as possible, and any harassment on the basis of demographics or other characteristics will not be tolerated because it hurts the ability to serve the customer, as well as just being morally right. Subjects currently have a strong idea of what is and what isn't accepted in trucking, but strong terminal management can change perceptions and spread good impressions about a terminal where people from all types can feel like they're accepted and part of the group.

Marketing Solutions

Admittedly, trucking companies won't be able to change their public opinion when it comes to how people perceive diversity and inclusion unless they can point to firm examples of people's perceptions being wrong. Without having genuine evidence from word-of-mouth, reputation, or a diverse workforce, the marketing would just feel disingenuous. Firms that do have strong diversity and inclusion programs should leverage this for their benefit to set themselves apart. A way companies could start the process of changing their public image in a genuine way is through activism on social issues. This is common in the tech sector, but companies have often signed letters speaking out on social issues when controversial bills come up. In February of 2020, 142 companies, FedEx declined an offer to be added, signed a letter criticizing a new Tennessee bill as being discriminatory. These types of campaigns can establish corporate values in a public sphere and create accountability for corporations.

Marketing can benefit truck driver recruitment most strongly in the LTL industry. The LTL truckload industry needs to find a way to stand out from the over the road full TL industry. Subjects weren't aware that companies offered positions with traditional hours, like what a city route with an LTL company would provide. The LTL industry needs to work to add nuance to the image of what a truck driver does. Companies talking about developing a relationship with

businesses across the city and stresses that a driver will be home for dinner every night with the kids. That needs to be a face of trucking. It makes the truck driving profession seem more interesting, and it is more adapted to the times where drivers are looking to have a successful family life.

Final Thoughts

Looking back on all the data, the thing that stands out to me the most is the sharp differences in how for the Alexander and Juan conditions, trucking was viewed as a career opportunity, but for the Alexandria and Juliana conditions, trucking was viewed as more of a short-term job opportunity. That's destructive for the long-term prospects for an industry when there's a public perception that a demographic characteristic, gender, so dramatically effects your long-term prospects in the industry. It fuels a cycle where the social norms of who a truck driver is gets reinforced because people will give feedback on opportunities based off of what easily comes to mind when they think of trucking. If truck driving firms want to solve a generational problem like the driver shortage, it'll take once in a generation change type of change. Firms need to embrace a spirit of openness and acceptance at the top levels of management to try to establish a reputation that will be appealing to all. There is a saying that bad news travels fast. Good news takes the scenic route, but with long term commitments to better workplace practices, companies can make their business a better place for all.

Direction for future research

This research has multiple avenues for future research. The first possible progression is to change the demographics of the hypothetical applicant. Instead of manipulating gender, a research team could manipulate sexuality, veteran status, or implied political beliefs. The

race/ethnicity manipulation could either be manipulated to include people from different backgrounds or replaced by one of the manipulations in the previous sentence.

A second possible direction for the research to go in the future would be to keep the manipulations from the experiment but add information to the job posting which might make the perspective company appear to have more of a focus on diversity and inclusion. This would test if the public perceptions are strong enough where trucking firms may or may not present as credible when trying this.

A third avenue would be to test different types of advertisements. A researcher could test if people react differently to picture based advertisements versus text-based advertisements or if there's different methods produce different results. An example of different methods would be to test if a poster creates different affects than a newspaper advertisement.

The biography of the friend could be manipulated as well. If this study was to be replicated with a "masculine" and "feminine" biography, different social stereotypes could be activated which could lead to different results. Gender stereotypes could affect how an applicant is perceived to "fit" in the industry, which could produce interesting results.

Judging from the different behavior of students that have a major or minor outside of Fisher, broadening this research to subjects outside of The Fisher College of Business. If the results among this population were similar to the results for the subjects with a major or minor outside of Fisher, this would be much stronger evidence that people with a broader education background tend to view trucking through a more critical lens than their solely business focused peers.

Conflict of Interests

There are no known conflicts of interest from any member of the research team regarding this study.

Limitations of the research

The biggest limitation of this study is that it tests hypothetical behavior. There is always an opportunity with a study testing a hypothetical action that it does not translate fully to real life behavior. While the methodology was based off of experiments in other subjects that have worked before, it still replicates behavior in a hypothetical situation which could change.

The second limitation of this experiment is that the subjects are only within the Fisher College of Business. This population might have a level of knowledge or interest about trucking that results in behavior which does not make them a good representative sample for the public at large. In addition, the average age of a college student is lower than the general public which means they could look at the profession with a different set of evaluative criteria when looking at the job,

Question 1: Would {friend name} enjoy working at this company?												
Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	290	149	66.1%	33.9%	159	96	62.4%	37.6%	128	52	71.1%	28.9%
Alexander	75	29	72.1%	27.9%	40	19	67.8%	32.2%	35	9	79.6%	20.4%
Alexandria	70	45	60.9%	39.4%	42	29	59.2%	40.8%	27	16	62.8%	37.2%
Juan	80	33	70.8%	29.2%	43	24	64.2%	35.8%	36	9	80.0%	20.0%
Juliana	65	42	60.8%	39.2%	34	24	58.6%	41.4%	71	18	62.5%	37.5%
Males	155	62	71.4%	28.6%	83	43	65.9%	34.1%	57	34	79.8%	21.2%
Females	135	87	60.8%	39.2%	76	53	58.9%	41.1%	58	33	62.6%	37.4%
Latino/Latina	145	75	65.9%	34.1%	77	48	61.6%	38.4%	66	27	71.0%	29.0%
Non-Latino/Latina	145	74	66.2%	33.8%	82	48	63.1%	36.9%	62	25	71.3%	28.7%
Question 2: Do you think the employees of Viking would welcome {friend name}?												
Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	392	46	89.5%	10.5%	232	23	91.0%	9.0%	128	52	71.1%	28.9%

Alexander	102	2	98.0%	2.0%	59	0	100%	0%	42	2	95.5%	4.5%
Alexandria	99	16	86.1%	13.9%	63	8	88.7%	11.3%	35	8	81.4%	18.6%
Juan	104	8	92.9%	7.1%	63	4	94.0%	6.0%	41	4	91.1%	8.9%
Juliana	87	20	81.3%	18.7%	47	11	81.0%	19.0%	39	9	81.3%	18.7%
Males	206	10	95.4%	4.6%	122	4	96.8%	3.2%	83	6	93.3%	6.7%
Females	186	36	83.8%	16.2%	110	19	85.3%	14.7%	74	17	81.3%	18.7%
Latino/Latina	191	28	87.2%	12.8%	110	15	88.0%	12.0%	80	13	86.0%	14.0%
Non-Latino/Latina	201	18	91.8%	8.2%	122	8	93.89%	6.1%	77	10	88.5%	11.5%
Question 3: Do you {friend name} would be committed to this company?												
Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	303	135	69.2%	30.8%	178	77	69.8%	30.2%	123	57	68.3%	31.7%
Alexander	79	25	76.0%	24.0%	45	14	76.3%	23.7%	34	10	77.3%	22.7%
Alexandria	81	34	70.4%	29.6%	48	23	67.6%	32.4%	32	11	74.4%	25.6%
Juan	81	31	72.3%	27.7%	46	21	68.7%	31.3%	35	10	77.8%	22.2%
Juliana	62	45	58.0%	42.0%	39	19	67.2%	27.8%	22	26	45.8%	54.2%

Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	321	117	73.3%	26.7%	183	72	71.8%	28.2%	135	45	75%	25%
Alexander	81	23	77.9%	22.1%	44	15	74.6%	25.4%	36	8	81.8%	18.2%
Alexandria	81	34	70.4%	29.6%	50	21	70.4%	29.6%	30	13	69.8%	31.2%
Juan	89	23	79.5%	20.5%	48	19	71.6%	29.4%	41	4	91.1%	8.9%
Juliana	70	37	65.4%	34.6%	41	17	70.7%	29.3%	28	20	58.3%	41.7%
Males	170	46	78.7%	21.3%	92	34	73%	27%	77	12	86.5%	13.5%
Females	151	71	68%	32%	91	38	70.5%	29.5%	58	33	63.7%	36.3%
Latino/Latina	159	60	72.6%	27.4%	89	36	71.2%	28.8%	69	24	74.2%	25.8%
Non-Latino/Latina	162	56	74%	26%	94	36	72.3%	27.7%	66	21	75.9%	24.1%
Question 6: Do you think someone can have a successful family life while being a truck driver?												
Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	250	187	57.2%	42.8%	150	105	58.8%	41.2%	98	82	54.4%	45.6%
Alexander	62	42	59.6%	40.4%	36	23	61.0%	39.0%	25	19	56.8%	43.2%

Alexandria	67	47	58.8%	41.2%	43	28	60.6%	39.4%	24	19	55.8%	44.2%
Juan	64	48	57.1%	42.9%	39	28	58.2%	41.8%	25	20	55.6%	44.4%
Juliana	57	50	53.3%	46.7%	32	26	55.2%	44.8%	24	24	50.0%	50.0%
Males	126	90	58.3%	41.7%	75	51	59.5%	41.5%	50	39	56.2%	43.8%
Females	124	97	56.1%	43.9%	75	54	58.1%	41.9%	48	43	52.8%	47.2%
Latino/Latina	121	98	55.3%	44.7%	71	54	56.8%	43.2%	49	33	52.7%	47.3%
Non-Latino/Latina	129	89	59.2%	40.8%	79	51	60.8%	39.2%	49	38	56.3%	43.7%
Question 7: Are you aware that there are truck driving positions with traditional 8-5 hours?												
Friend Name	Overall Responses				Male Subjects				Female Subjects			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	195	242	44.6%	55.4%	121	134	47.5%	52.5%	72	108	40.0%	60.0%
Alexander	40	64	28.5%	61.5%	25	34	42.4%	57.6%	14	30	31.8%	68.2%
Alexandria	54	60	47.4%	52.6%	35	36	49.3%	50.7%	19	24	44.2%	55.8%
Juan	49	63	43.8%	56.2%	28	39	41.8%	58.2%	21	24	46.7%	53.3%
Juliana	52	55	48.6%	51.4%	33	25	56.9%	43.1%	18	30	37.5%	62.5%
Males	89	127	41.2%	58.8%	53	73	42.1%	57.9%	35	54	39.3%	60.7%
Females	106	115	48.0%	52.0%	68	61	52.7%	47.3%	37	54	40.7%	59.3%

Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	145	17	89.5%	10.5%	247	29	89.5%	10.5%
Alexander	35	1	97.2%	2.8%	67	1	98.5%	1.5%
Alexandria	37	6	86.0%	14.0%	61	10	85.9%	14.1%
Juan	46	2	95.8%	4.2%	59	6	90.8%	9.2%
Juliana	27	8	77.1%	22.9%	60	12	83.3%	16.7%
Males	81	3	96.4%	3.6%	126	7	94.7%	5.3%
Females	64	14	82.0%	18.0%	121	22	84.6%	15.4%
Latino/Latina	73	10	88.0%	12.0%	119	18	86.9%	13.1%
Non-Latino/Latina	72	7	91.1%	8.9%	128	11	92.1%	7.9%
Question 3: Do you {friend name} would be committed to this company?								
Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	106	56	65.4%	34.6%	197	75	72.4%	27.6%
Alexander	29	7	80.6%	19.4%	50	18	73.5%	26.5%

Alexandria	23	20	53.5%	46.5%	57	10	85.1%	14.9%
Juan	37	11	77.1%	22.9%	45	20	69.2%	30.8%
Juliana	17	18	48.6%	51.4%	45	27	62.5%	37.5%
Males	66	18	78.6%	21.4%	95	38	71.4%	28.6%
Females	40	38	51.3%	48.7%	102	37	73.4%	26.6%
Latino/Latina	54	29	65.1%	34.9%	90	47	65.7%	34.3%
Non-Latino/Latina	52	27	65.8%	34.2%	107	28	79.3%	20.7%
Question 4: Do you think {friend name} could find someone with a similar background to them?								
Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	114	48	70.4%	29.6%	194	82	70.3%	29.7%
Alexander	33	3	91.7%	8.3%	62	6	91.2%	8.8%
Alexandria	25	18	58.1%	41.9%	46	25	64.8%	35.2%
Juan	38	10	79.2%	20.8%	46	19	70.8%	29.2%
Juliana	18	17	51.4%	48.6%	40	32	55.6%	44.4%
Males	71	13	84.5%	15.5%	108	25	81.2%	18.8%

Females	54	35	55.1%	44.9%	86	57	60.1%	39.9%
Latino/Latina	56	27	67.5%	32.5%	86	51	62.8%	37.2%
Non-Latino/Latina	58	21	73.4%	26.6%	108	31	77.7%	22.3%
Question 5: Would you recommend {friend name} pursue employment at this company?								
Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	114	48	70.4%	29.6%	206	70	74.6%	25.4%
Alexander	29	7	70.6%	19.4%	52	16	76.5%	23.5%
Alexandria	25	18	58.1%	41.9%	55	16	77.5%	22.5%
Juan	38	10	79.2%	20.8%	51	14	78.5%	21.5%
Juliana	22	13	62.9%	37.1%	48	24	66.7%	33.3%
Males	67	17	79.8%	20.2%	103	30	77.4%	22.6%
Females	47	31	60.3%	39.7%	103	40	72.0%	28.0%
Latino/Latina	60	23	72.3%	27.7%	99	38	72.3%	27.7%
Non-Latino/Latina	54	25	68.4%	31.6%	107	32	77%	23%
Question 6: Do you think someone can have a successful family life while being a truck driver?								

Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	92	70	56.8%	43.2%	158	118	57.3%	42.7%
Alexander	21	15	58.3%	41.7%	41	27	60.3%	39.7%
Alexandria	21	22	48.8%	51.2%	46	25	64.8%	35.2%
Juan	31	17	64.6%	35.4%	33	32	50.8%	49.2%
Juliana	19	16	54.3%	45.7%	38	34	52.8%	47.2%
Males	52	32	61.9%	38.1%	74	59	55.6%	45.4%
Females	40	38	51.3%	48.7%	84	59	58.7%	41.3%
Latino/Latina	50	33	60.2%	39.8%	71	66	51.8%	48.2%
Non-Latino/Latina	42	37	53.2%	46.8%	87	52	62.6%	37.4%
Question 7: Are you aware that there are truck driving positions with traditional 8-5 hours?								
Friend Name	Subjects with a non-Fisher major or minor				Subjects with a major or minor only in Fisher			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	72	90	44.4%	55.6%	123	153	44.6%	55.4%
Alexander	10	26	27.8%	72.2%	30	38	44.1%	55.9%

Alexandria	20	23	46.5%	53.5%	34	37	47.9%	52.1%
Juan	28	20	58.3%	41.7%	21	44	32.3%	67.1%
Juliana	14	21	40.0%	60.0%	38	34	52.8%	47.2%
Males	38	46	45.2%	54.8%	51	82	38.3%	61.7%
Females	34	44	43.6%	56.4%	72	71	50.4%	49.6%
Latino/Latina	42	41	50.6%	49.4%	59	78	43.1%	56.9%
Non-Latino/Latina	30	49	38.0%	62.0%	64	75	46.0%	54.0%

Table 5: Section one responses-B

Question 1: Would {friend name} enjoy working at this company?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	108	58	65.1%	34.9%	181	91	66.5%	33.5%
Alexander	30	12	71.4%	28.6%	45	17	72.6%	27.4%
Alexandria	21	17	55.3%	44.7%	48	28	63.2%	36.8%
Juan	31	11	73.8%	26.2%	49	22	69.0%	31.0%
Juliana	26	18	59.1%	40.9%	39	24	61.9%	38.1%

Males	61	23	72.6%	27.4%	94	39	70.7%	29.3%
Females	47	35	57.3%	42.7%	87	52	62.6%	37.4%
Latino/Latina	57	29	66.3%	33.7%	88	46	65.7%	34.3%
Non-Latino/Latina	51	29	63.8%	36.2%	93	35	67.4%	32.6%
Question 2: Do you think the employees of Viking would welcome {friend name}?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	147	19	88.6%	11.4%	245	27	90.1%	9.9%
Alexander	41	1	97.6%	2.4%	61	1	98.4%	1.6%
Alexandria	32	6	84.2%	15.8%	66	10	86.8%	13.2%
Juan	38	4	90.5%	9.5%	67	4	94.4%	5.6%
Juliana	36	8	81.8%	18.2%	51	12	81.0%	19.0%
Males	79	5	94.0%	6.0%	128	5	88.1%	11.9%
Females	68	14	83.0%	7.0%	127	11	92.0%	8.0%
Latino/Latina	74	12	86.1%	13.9%	118	16	88.1%	11.9%
Non-Latino/Latina	73	7	91.3%	8.7%	127	11	92.0%	8.0%

Question 3: Do you {friend name} would be committed to this company?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	113	53	68.1%	31.9%	180	82	68.7%	31.3%
Alexander	34	8	81.0%	19.0%	35	17	67.3%	32.7%
Alexandria	25	13	65.8%	34.2%	55	21	72.4%	27.6%
Juan	29	13	69.1%	30.9%	53	18	74.7%	25.3%
Juliana	25	19	56.8%	43.2%	37	26	58.7%	41.3%
Males	63	21	75.0%	25.0%	88	35	71.5%	28.5%
Females	50	32	61.0%	39.0%	92	47	66.2%	33.8%
Latino/Latina	54	32	62.8%	37.2%	90	44	67.2%	32.8%
Non-Latino/Latina	59	21	73.8%	26.2%	90	38	70.3%	29.7%
Question 4: Do you think {friend name} could find someone with a similar background to them?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	118	48	71.1%	28.9%	190	82	69.9%	30.1%

Alexander	40	2	95.2%	4.8%	55	7	88.7%	11.3%
Alexandria	22	16	57.9%	42.1%	49	27	64.5%	35.5%
Juan	32	10	76.2%	23.8%	52	19	73.2%	26.8%
Juliana	24	20	54.6%	45.4%	34	29	54.0%	46.0%
Males	72	12	85.7%	14.3%	107	26	80.4%	19.6%
Females	46	36	56.1%	43.9%	83	56	59.7%	40.3%
Latino/Latina	56	30	65.1%	34.9%	86	48	64.2%	35.8%
Non-Latino/Latina	62	18	77.5%	22.5%	104	34	75.4%	24.6%

Question 5: Would you recommend {friend name} pursue employment at this company?

Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	126	40	75.9%	24.1%	194	78	71.3%	28.7%
Alexander	34	8	81.0%	19.0%	47	15	75.8%	24.2%
Alexandria	28	10	73.7%	27.3%	52	24	68.4%	31.6%
Juan	32	10	76.2%	23.8%	57	14	80.3%	19.7%
Juliana	32	12	72.7%	27.3%	38	25	60.3%	39.7%

Males	66	18	78.6%	21.4%	104	29	78.2%	21.8%
Females	60	22	73.2%	26.8%	90	49	64.7%	35.3%
Latino/Latina	64	22	74.4%	25.6%	95	39	70.9%	29.1%
Non-Latino/Latina	62	18	77.5%	22.5%	99	39	71.7%	28.3%
Question 6: Do you think someone can have a successful family life while being a truck driver?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	110	56	66.3%	33.7%	140	132	51.5%	48.5%
Alexander	26	16	61.9%	38.1%	36	26	58.1%	41.9%
Alexandria	27	11	71.0%	29.0%	40	36	52.6%	47.4%
Juan	30	12	71.4%	28.6%	34	37	47.9%	52.1%
Juliana	27	17	61.4%	38.6%	30	33	47.6%	52.4%
Males	56	28	66.7%	33.3%	70	63	52.6%	47.4%
Females	54	28	65.9%	34.1%	70	69	50.4%	49.6%
Latino/Latina	57	29	66.3%	33.7%	64	70	47.8%	52.2%
Non-Latino/Latina	53	27	66.3%	33.7%	76	62	55.1%	44.9%

Question 7: Are you aware that there are truck driving positions with traditional 8-5 hours?								
Friend Name	Subjects that know a truck driver				Subjects that don't know a truck driver			
	Count Yes	Count No	% Yes	% No	Count Yes	Count No	% Yes	% No
Total	87	79	52.4%	47.6%	108	164	39.7%	60.3%
Alexander	20	22	47.6%	52.4%	20	42	32.3%	67.7%
Alexandria	16	22	42.1%	57.9%	38	38	50.0%	50.0%
Juan	25	17	59.5%	40.5%	24	47	33.8%	66.2%
Juliana	26	18	59.1%	40.9%	26	37	41.3%	58.7%
Males	45	39	53.6%	46.4%	44	89	33.1%	66.9%
Females	42	40	51.2%	48.8%	64	75	46.0%	54.0%
Latino/Latina	51	35	59.3%	40.7%	50	84	37.3%	62.7%
Non-Latino/Latina	36	44	45.0%	55.0%	58	80	42.0%	58.0%

Table 6: Section one responses-C

Spreads between Yes/No for Results question 1 (All hypotheses are Name 1 > Name 2 for all questions)

* = statistically significant at .05, ** = statistically significant at .01

Name 1	Name 2	General	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Alexander	Alexandria	11.3%	8.6%	16.8%	24.3% *	4.3%	16.2%	9.4%
Juan	Juliana	10.1%	5.6%	17.5%	3.8%	14.1%	14.7%	7.1%
Males	Females	10.6% *	7.0%	17.1% **	13.7% *	9.2%	15.3% *	8.1%

Spreads between Yes/No Results for question 2

* = statistically significant at .05, ** = statistically significant at .01

Name 1	Name 2	General	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Alexander	Alexandria	12.0% **	11.3% *	14.1% *	11.2%	12.6% **	13.4% *	11.5% *
Juan	Juliana	11.6% **	13.0% *	9.9%	18.7% *	7.4%	8.7%	13.4% *
Males	Females	11.6% **	11.6% **	11.9% *	14.4% **	10.1% **	11.1% *	12.1% **

Spreads between Yes/No Results for question 3

* = statistically significant at .05, ** = statistically significant at .01

Name 1	Name 2	General	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Alexander	Alexandria	5.5%	8.7%	2.9%	27.1% *	-11.6%	15.2%	-5.1%
Juan	Juliana	14.4% *	1.4%	31.9% **	28.5% **	6.7%	12.2%	15.9%
Males	Females	9.7% *	4.8%	18.2% **	27.3% **	-2.0%	14.0% *	5.4%
Spreads between Yes/No Results for question 4 *=statistically significant at .05, **=statistically significant at .01								
Name 1	Name 2	General	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Alexander	Alexandria	28.7% **	27.0% **	32.8% **	33.5% **	26.4% **	37.3% **	24.2% *
Juan	Juliana	20.8% **	18.4% **	26.0% **	27.7% **	15.2% *	21.7% *	15.9% *
Males	Females	24.3% **	21.3% **	29.4% **	29.4% **	21.1% **	29.6% **	20.8% **
Spreads between Yes/No Results for question 5 *=statistically significant at .05, **=statistically significant at .01								
Name 1	Name 2	General	Males	Females	Subjects with a non-Fisher	Subjects with a major or minor	Subjects that know a truck driver	Subjects that don't know a truck driver

Response	Overall Responses		Male Subjects		Female Subjects	
	Count	% of total	Count	% of total	Count	% of total
1	21	4.4%	10	3.3%	11	6.1%
2	162	33.5%	98	32.3%	64	35.6%
3	176	36.4%	117	38.6%	59	32.8%
4	92	19.1%	57	18.8%	35	19.4%
5	32	6.6%	21	6.9%	11	6.1%
<p>Do you think the Truck Driver community is accepting of racial or ethnic diversity?</p> <p>(Scale of 1 Very Unaccepting-5 Very Accepting)</p>						
Response	Overall Responses		Male Subjects		Female Subjects	
	Count	% of total	Count	% of total	Count	% of total
1	2	0.4%	0	0.0%	2	1.1%
2	51	10.6%	31	10.2%	20	11.1%
3	144	29.8%	92	30.4%	52	28.9%
4	160	33.1%	107	35.3%	53	29.4%
5	126	26.1%	73	24.1%	53	29.4%

Table 8: Diversity and Inclusion Responses-A

Do you think the Truck Driver community is accepting of the LGBTQ Community?								
(Scale of 1 Very Unaccepting-5 Very Accepting)								
Response	Subjects with a non-Fisher major or minor		Subjects with a major or minor only in Fisher		Subjects that know a truck driver		Subjects that don't know a truck driver	
	Count	% of total	Count	% of total	Count	% of total	Count	% of total
1	9	5.6%	18	6.5%	12	7.2%	16	5.9%
2	59	36.7%	66	23.9%	39	23.5%	86	31.6%
3	61	37.9%	139	50.4%	92	55.42%	108	39.7%
4	20	12.4%	33	12.0%	12	7.23%	41	15.1%
5	12	7.5%	20	7.3%	11	6.6%	21	7.7%
Do you think the Truck Driver community is accepting of gender diversity?								
(Scale of 1 Very Unaccepting-5 Very Accepting)								
Response	Subjects with a non-Fisher major or minor		Subjects with a major or minor only in Fisher		Subjects that know a truck driver		Subjects that don't know a truck driver	
	Count	% of total	Count	% of total	Count	% of total	Count	% of total
1	10	6.2%	10	3.6%	8	4.8%	12	4.4%
2	67	41.4%	78	28.3%	54	32.5%	91	33.5%

3	49	30.3%	109	39.5%	57	34.3%	101	37.1%
4	26	16.0%	59	21.4%	34	20.5%	51	18.8%
5	10	6.2%	20	7.3%	13	7.8%	17	6.2%
<p>Do you think the Truck Driver community is accepting of racial or ethnic diversity?</p> <p>(Scale of 1 Very Unaccepting-5 Very Accepting)</p>								
Response	Subjects with a non-Fisher major or minor		Subjects with a major or minor only in Fisher		Subjects that know a truck driver		Subjects that don't know a truck driver	
	Count	% of total	Count	% of total	Count	% of total	Count	% of total
1	1	0.6%	1	0.4%	2	1.2%	0	0.0%
2	21	13.0%	26	9.4%	15	9.0%	32	6.7%
3	47	29.2%	79	28.6%	51	30.7%	75	15.6%
4	53	32.9%	96	34.8%	52	31.3%	97	20.2%
5	40	24.8%	74	26.8%	46	27.7%	68	14.1%

Table 9: Diversity and Inclusion Responses-B

Summary Statistics for subjects' perceptions of truck driver's acceptance of the LBGTQ Community							
Statistic	Overall	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver

Count	449	286	180	161	276	166	272
Mean	2.86	2.83	2.91	2.80	2.89	2.83	2.87
St. Dev	0.947	0.899	1.02	0.985	1.22	0.911	0.997
Summary Statistics for subject's perceptions of truck driver's acceptance of gender diversity							
Statistic	Overall	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Count	449	286	180	161	276	166	272
Mean	2.90	2.93	2.84	2.75	3.0	2.94	2.89
St. Dev	0.977	0.957	1.001	1.002	0.965	1.016	0.968
Summary Statistics for subject's perceptions of truck driver's acceptance of racial or ethnic diversity							
Statistic	Overall	Males	Females	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Subjects that know a truck driver	Subjects that don't know a truck driver
Count	449	286	180	161	276	166	272
Mean	3.74	3.73	3.75	3.68	3.78	3.75	3.74
St. Dev	0.977	0.939	1.032	1.004	0.957	0.997	0.963

Table 10: Statistics breakdown for Diversity and Inclusion Questions

Confidence Intervals for subject's perceptions of truck driver's acceptance on various groups									
LGBTQ Community				Gender Diversity			Racial or Ethnic Diversity		
Group	Low Bound	High Bound	Interval	Low Bound	High Bound	Interval	Low Bound	High Bound	Interval
General	2.857	2.865	(2.857,2.865)	2.897	2.905	(2.897, 2.905)	3.735	3.743	(3.735,3.743)
Males	2.828	2.84	(2.828,2.84)	2.931	2.944	(2.931,2.944)	3.727	3.739	(3.727, 3.739)
Females	2.894	2.92	(2.894,2.92)	2.828	2.85	(2.828,2.85)	3.739	3.761	(3.739,3.761)
Subjects with a non-Fisher major or minor	2.783	2.807	(2.783,2.807)	2.735	2.759	(2.735,2.759)	3.667	3.691	(3.667,3.691)
Subjects with a major or minor only in Fisher	2.886	2.904	(2.886,2.904)	2.997	3.011	(2.997, 3.011)	3.776	3.789	(3.776,3.789)
Subjects that know a truck driver	2.815	2.836	(2.815 2.836)	2.928	2.952	(2.928,2.952)	3.741	3.765	(3.741,3.765)
Subjects that don't know a truck driver	2.864	2.879	(2.864,2.879)	2.883	2.897	(2.883, 2.897)	3.732	3.746	(3.732,3.746)

Table 11: Diversity and Inclusion Confidence Intervals by demographic

Comparison of how groups compare in their perceptions of trucking on various factors								
LGBTQ Community			Gender Diversity			Racial or Ethnic Diversity		
Group 1	Comparison	Group 2	Group 1	Comparison	Group 2	Group 1	Comparison	Group 2
Females	Perceive trucking as more accepting	Males	Males	Perceive trucking as more accepting	Females	Males	No Significant Difference	Females
Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Subjects with a non-Fisher major or minor	Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Subjects with a non-Fisher major or minor
Subjects that don't know a truck driver	Perceive trucking as more accepting	Subjects that know a truck driver	Subjects that know a truck driver	Perceive trucking as more accepting	Subjects that don't know a truck driver	Subjects that know a truck driver	Perceive trucking as more accepting	Subjects that don't know a truck driver
Comparison of how groups compare in their perceptions of trucking on various factors compared to the average subject								
LGBTQ Community			Gender Diversity			Racial or Ethnic Diversity		
Group 1	Comparison	Group 2	Group 1	Comparison	Group 2	Group 1	Comparison	Group 2
Males	Perceive trucking as less accepting	Average Subject	Males	Perceive trucking as more accepting	Average Subject	Males	No Significant Difference	Average Subject
Females	Perceive trucking as more accepting	Average Subject	Females	Perceive trucking as less accepting	Average Subject	Females	No Significant Difference	Average Subject
Subjects with a non-Fisher	Perceive trucking as less accepting	Average Subject	Subjects with a non-Fisher	Perceive trucking as less accepting	Average Subject	Subjects with a non-Fisher	Perceive trucking as less accepting	Average Subject

major or minor			major or minor			major or minor		
Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Average Subject	Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Average Subject	Subjects with a major or minor only in Fisher	Perceive trucking as more accepting	Average Subject
Subjects that know a truck driver	Perceive trucking as less accepting	Average Subject	Subjects that don't know a truck driver	Perceive trucking as more accepting	Average Subject	Subjects that don't know a truck driver	Perceive trucking as more accepting	Average Subject
Subjects that don't know a truck driver	Perceive trucking as more accepting	Average Subject	Subjects that don't know a truck driver	No Significant Difference	Average Subject	Subjects that don't know a truck driver	No Significant Difference	Average Subject

Table 12: Diversity and Inclusion Demographic Comparison

- **Note:** Due to a Qualtrics system error, results for the Juliana condition could not be calculated for male and female subjects and due to a likely coding error. The following question for the Alexander condition was displayed as a free response. Results were analyzed, isolated and grouped into categories that match the multiple-choice question for the other forms

How long do you think {friend name} would work at this company?							
Length of Time	Overall			Men		Women	
	Alexandria %	Juan %	Juliana %	Alexandria %	Juan %	Alexandria %	Juan %
<6 Months	14%	7%	14%	17%	7%	9%	7%
6-12 months	37%	15%	37%	38%	22%	35%	7%
12-24 months	25%	26%	20%	20%	22%	35%	36%
>2 years	24%	53%	29%	25%	48%	21%	51%

Table 13: Predicted Employment by demographic-A

How long do you think {Friend name} would work at this company?						
Length of Time	Subjects with a non-Fisher major or minor			Subjects with a major or minor only in Fisher		
	Alexandria %	Juan %	Juliana %	Alexandria %	Juan %	Juliana %
<6 Months	14%	7%	7%	14%	6%	19%
6-12 months	44%	22%	32%	32%	6%	41%
12-24 months	21%	22%	23%	28%	30%	17%
>2 years	21%	48%	39%	35%	59%	22%
How long do you think {Friend name} would work at this company?						
Length of Time	Subjects that know a truck driver			Subjects that do not know a truck driver		
	Alexandria %	Juan %	Juliana %	Alexandria %	Juan %	Juliana %
<6 Months	16%	6%	17%	13%	8%	13%
6-12 months	34%	15%	37%	38%	18%	38%
12-24 months	16%	33%	23%	30%	23%	18%
>2 years	34%	46%	23%	18%	51%	32%

Table 14: Predicted Employment by demographic-B

How long do you think Alexander would work at this company? (This question was accidentally free response)							
Length of Time	Overall %	Male %	Female %	Subjects with a non-Fisher major or minor %	Subjects with a major or minor only in Fisher %	Subjects that know a truck driver%	Subjects that do not know a truck driver %
<6 Months	4%	2%	7%	6%	3%	8%	5%
6-12 months	6%	7%	5%	3%	8%	3%	5%
12-24 months	20%	24%	14%	17%	21%	20%	20%
>2 years	70%	68%	74%	74%	68%	70%	70%

Table 15: Predicted Employment-Alexander Form

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